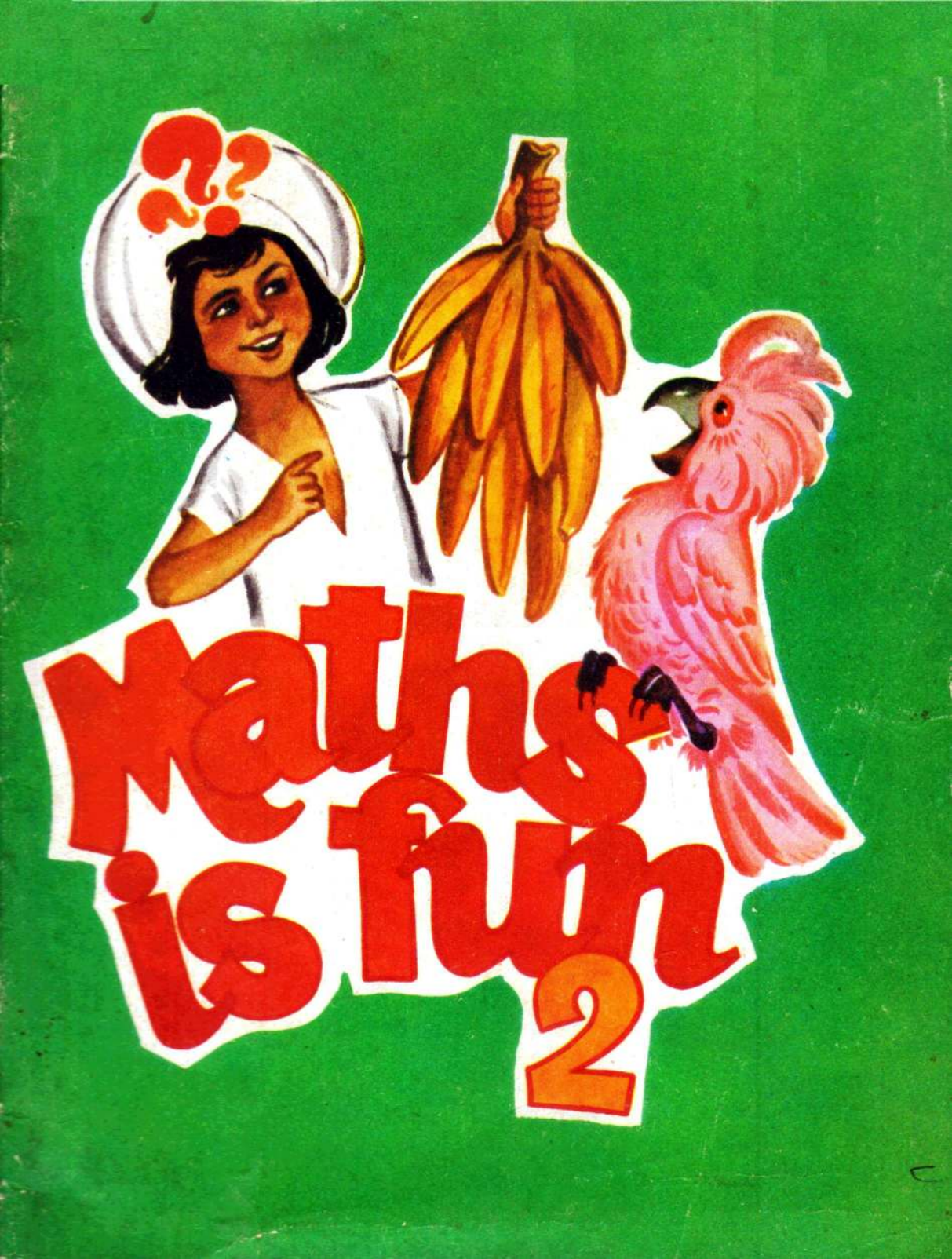
Maths is fun
2

T. K. Zikalkina

Maths is fun 2

Illustrated by B. RYTMAN

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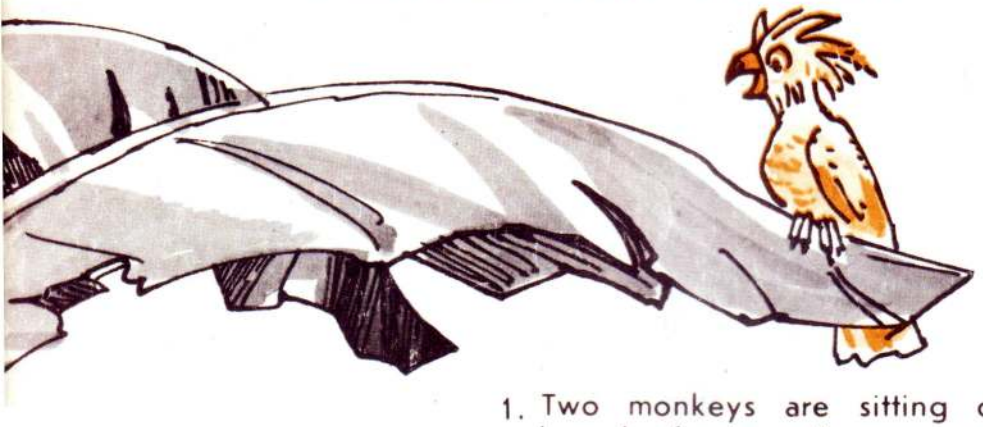
I. MULTIPLICATION AND DIVISION

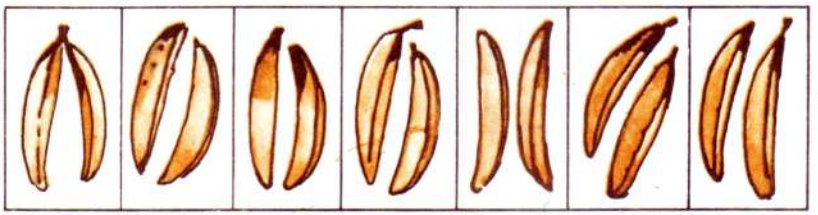


1. Two monkeys are sitting on each branch of a tree. How many monkeys are sitting on two branches? Set down this sum and solve it.

□ □ = □

2. Make up a sum using an equal number of items:

2 + 2 + 2 + 2 + 2 + 2 + 2

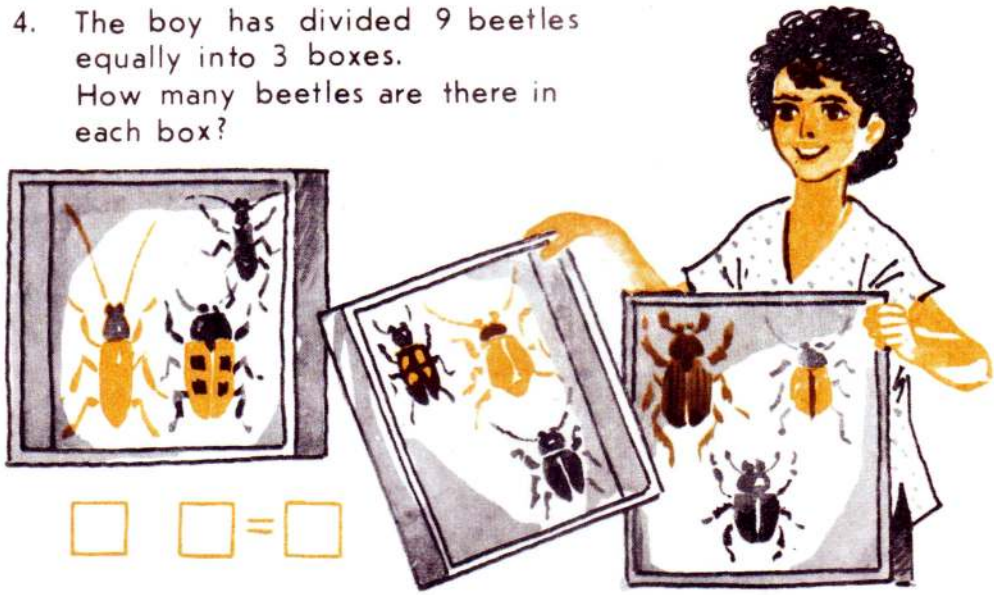
 = □

2 → 4 → 6 → 8 → 10 → 12 → 14

Multiply and divide each sum by 2:

2 · 1 = 2	16 : 2
2 · 2	18 : 2
6 · 2	10 : 2
7 · 2	12 : 2

4. The boy has divided 9 beetles equally into 3 boxes.
How many beetles are there in each box?



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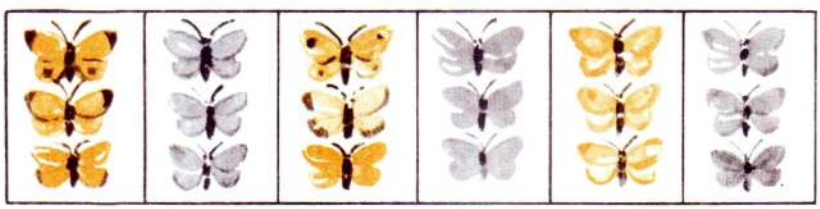
5. Make up a sum using an equal number of items:

3 + 3 + 3 + 3 + 3 + 3



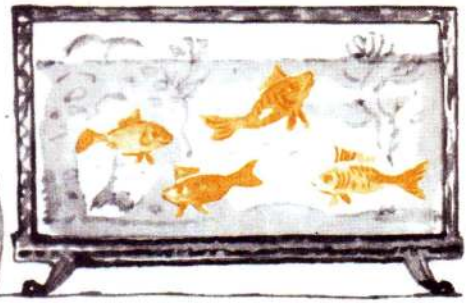
= □

3 → 6 → 9 → □ → □ → □

6. Multiply and divide each sum by 3:

3 · 2	5 · 3	21 : 3	9 : 3
3 · 3	6 · 3	24 : 3	12 : 3
3 · 4	7 · 3	27 : 3	15 : 3

7. There are 4 fishes in each aquarium. How many fishes are there in 2 aquariums altogether?



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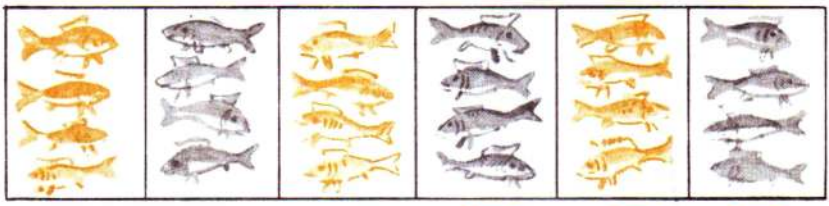
8. Make up a sum using an equal number of items:

4 + 4 + 4 + 4 + 4 + 4



=□

4 → 8 → 12 → □ → □ → □

9. Multiply and divide each sum by 4:

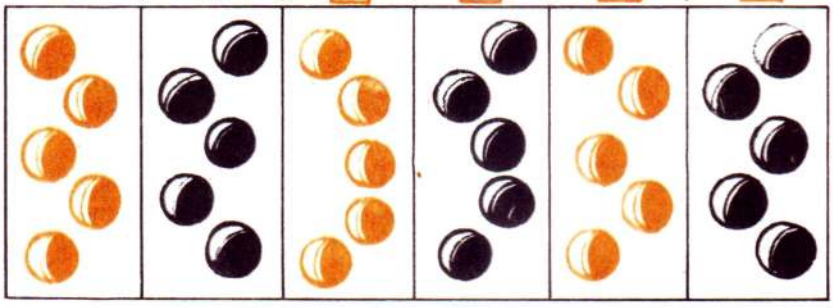
4 · 2	12 : 4
4 · 3	16 : 4
6 · 4	28 : 7
7 · 4	32 : 8

10. A girl divided 15 bananas equally among 3 plates. How many bananas are on each plate?

□ □ = □

11. Make up a sum using an equal number of items:

5 + 5 + □ + □ + □ + □



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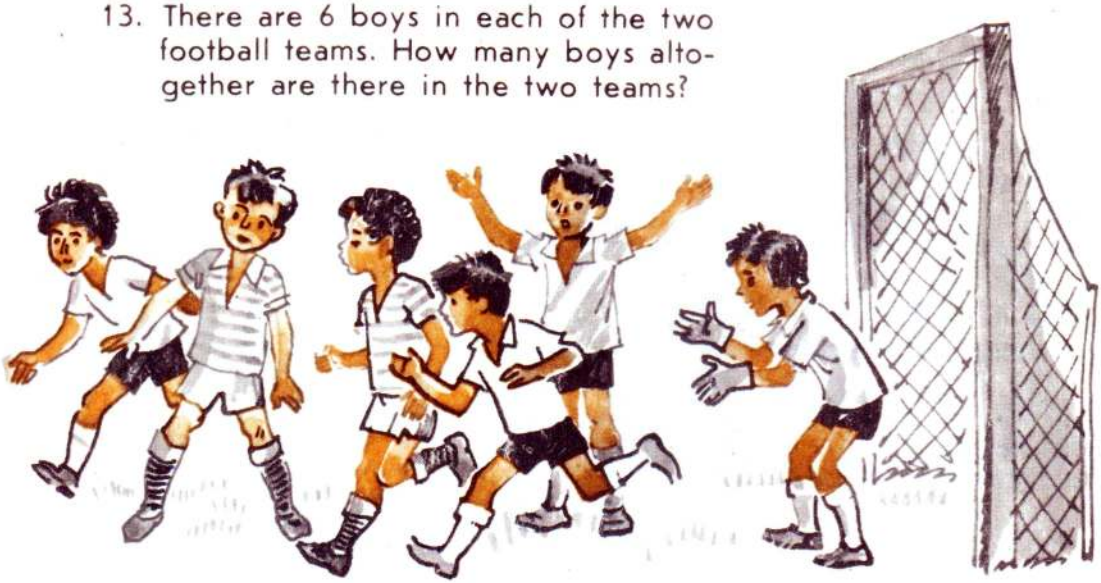
5 → 10 → □ → □ → □ → □

12. Multiply and divide each sum by 5:

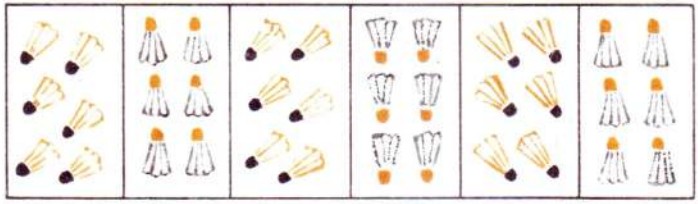
5 • 1	1 • 5	5 : 5	5 : 1
5 • 2	2 • 5	10 : 5	10 : 2

13. There are 6 boys in each of the two football teams. How many boys altogether are there in the two teams?



14. Make up a sum using an equal number of items:

6 + 6 + □ + □ + □ + □



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6 → 12 → □ → □ → □ → □

15. Multiply and divide each sum by 6:

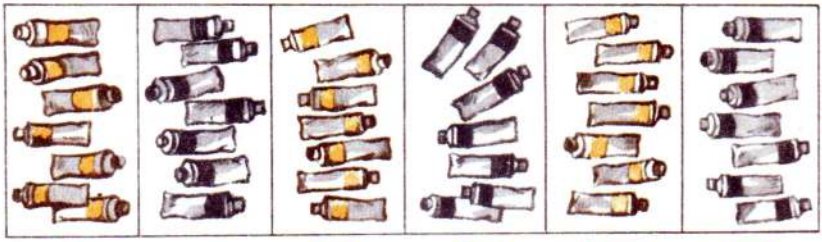
6 · 1 =	1 · 6 =	6 : 6 =	6 : 1 =
6 · 2 =	2 · 6 =	12 : 6 =	12 : 2 =
6 · 3 =	3 · 6 =	18 : 6 =	18 : 3 =

16. Three shelves hold 7 vases each. How many vases are there altogether on the three shelves?

□ □ = □

17. Make up a sum using an equal number of items:

7 + 7 + □ + □ + □ + □



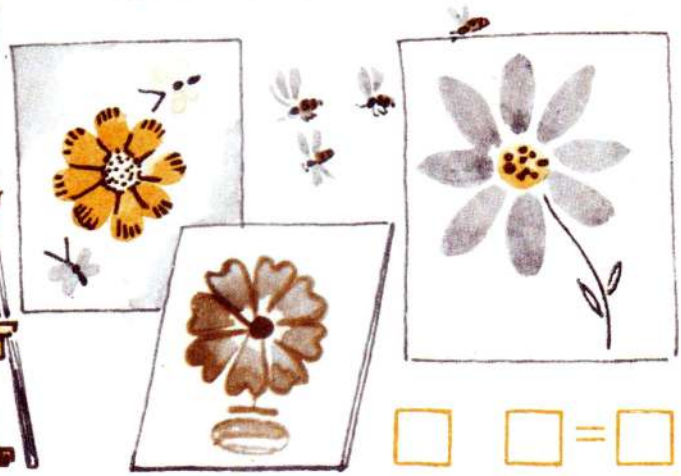
=□

7 → 14 → □ → □ → □ → □

18. Multiply and divide each sum by 7:

7 · 1 = 7	1 · 7 = 7	7 : 7 = 1	7 : 1 = 7
7 · 2 =	2 · 7 =	14 : 7 =	14 : 2 =
7 · 3 =	3 · 7 =	21 : 7 =	21 : 3 =

19. The girl has drawn 4 flowers. Each flower has 8 petals. How many petals do all 4 flowers have?



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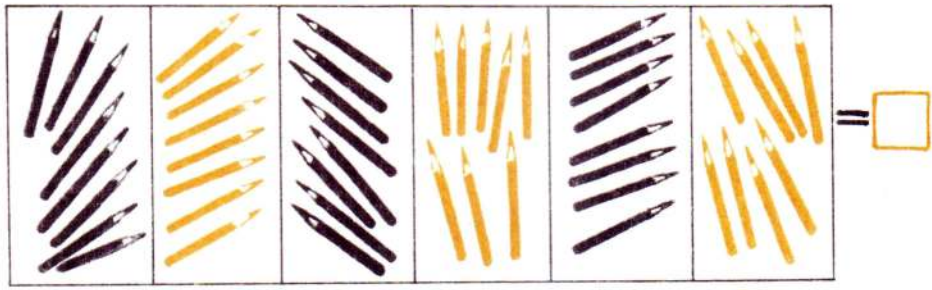
20. Make up a sum using an equal number of items:

8 + 8 + □ + □ + □ + □



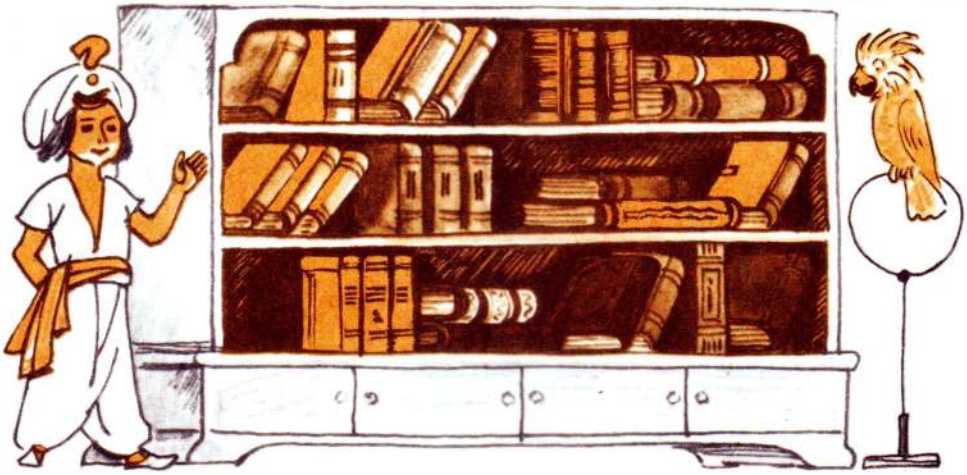
8 → 16 → □ → □ → □ → □

21. Multiply and divide each sum by 8:

8 · 1 =	1 · 8 =	8 : 1 =	8 : 8 =
8 · 2 =	2 · 8 =	16 : 2 =	16 : 8 =

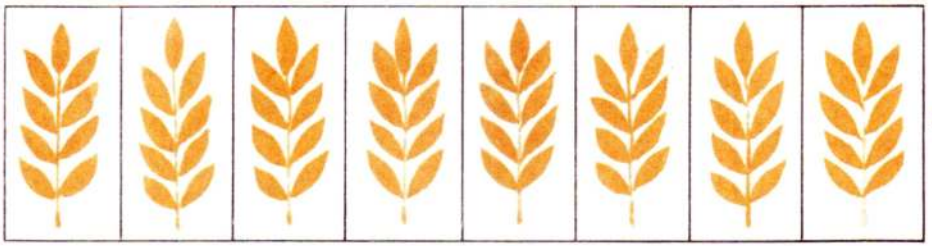
22. 3 shelves held 9 books each. How many books altogether did the 3 shelves hold?

□ □ = □



23. Make up a sum using an equal number of items:

9 + 9 + □ + □ + □ + □ + □ + □ = □



9 → 18 → □ → □ → □ → □ → □ → □

24. Multiply and divide each sum by 9:

9 · 1 =	1 · 9 =	9 : 1 =	9 : 9 =
9 · 2 =	2 · 9 =	18 : 2 =	18 : 9 =
9 · 3 =	3 · 9 =	27 : 3 =	27 : 9 =

25. In each square draw the number of shapes according to the figure below. Write down the figures in full.

Hundreds	Tens	Units
2	5	3

Hundreds	Tens	Units
4	6	1

Nine hundred eighty-six .....

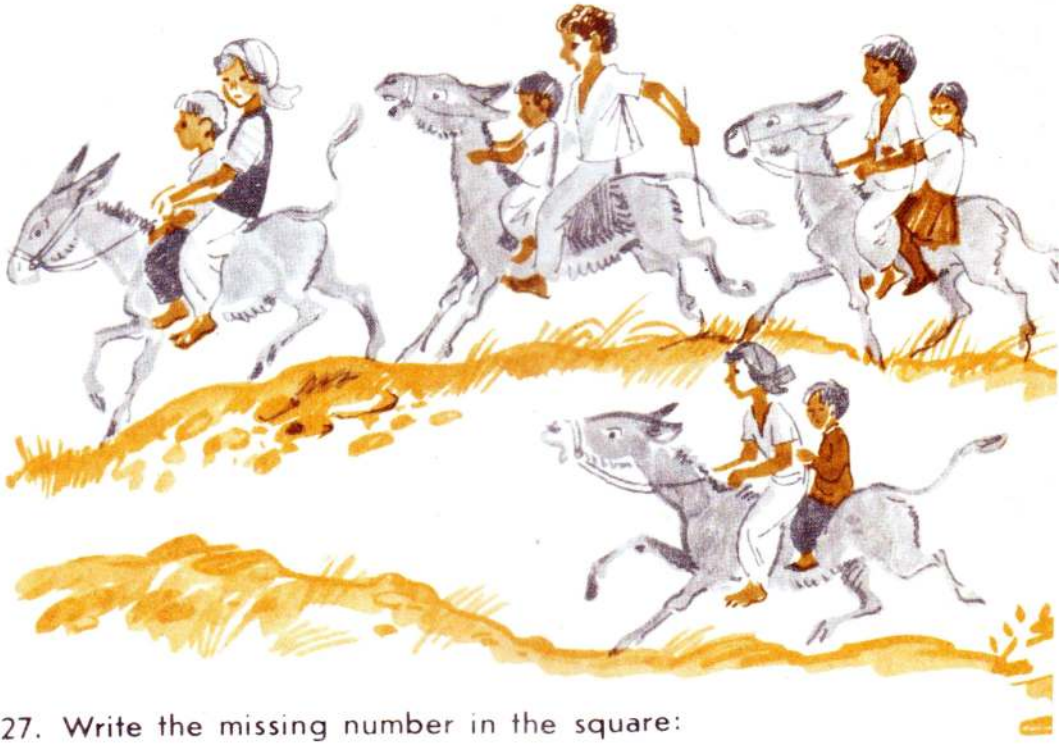
Hundreds	Tens	Units
3	8	0

Hundreds	Tens	Units
6	0	0

Hundreds	Tens	Units
7	0	5

Hundreds	Tens	Units
9	4	0

26. There are ten donkeys with two children riding each of them. How many children are riding the donkeys altogether?



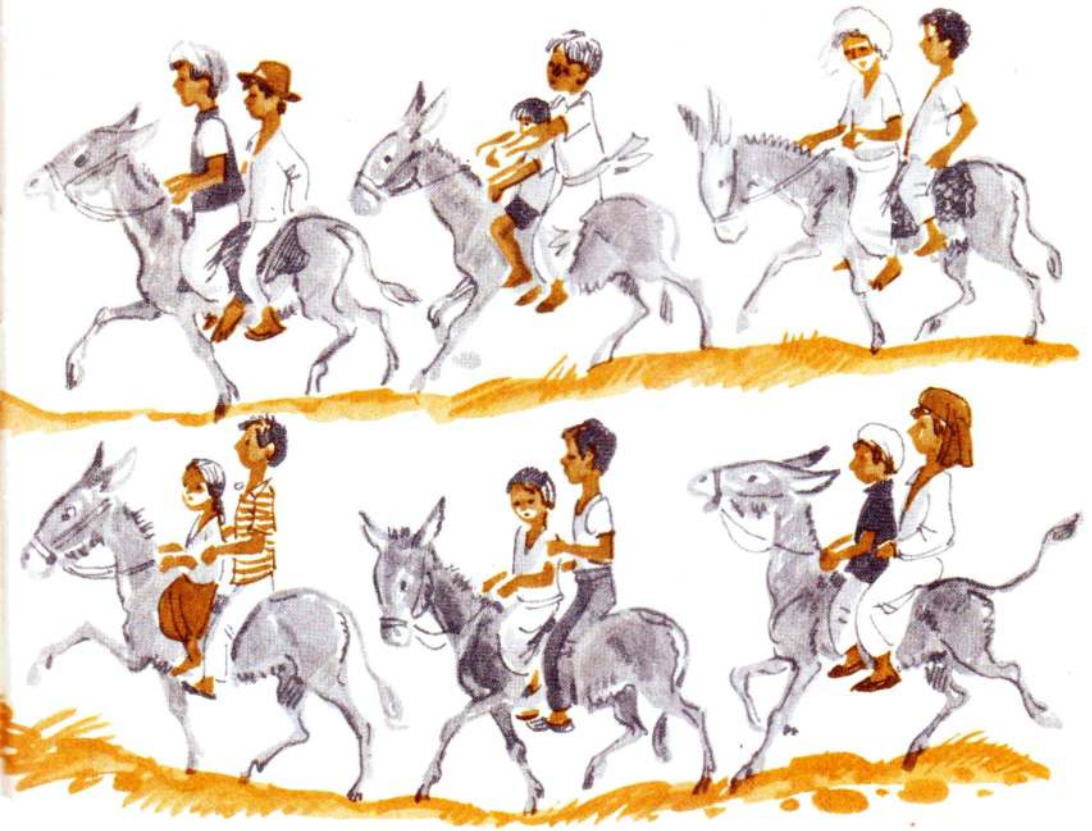
27. Write the missing number in the square:

$3 \cdot \square = 15$	$5 \cdot \square = 35$	$4 \cdot 7 = \square$
$4 \cdot \square = 20$	$9 \cdot \square = 54$	$\square \cdot 3 = 27$
$\square \cdot 6 = 30$	$32 : \square = 4$	$81 : \square = 9$
$7 \cdot \square = 56$	$25 : \square = 5$	$64 : \square = 8$
$9 \cdot \square = 72$	$\square : 3 = 9$	$81 : \square = 9$
$8 \cdot \square = 64$	$\square : 5 = 8$	$\square : 6 = 9$

28.* A boy thinks of a number, multiplies it by 2, then adds 3. The result is 11. What is the number he first thought of?

* See the answer on page 45.

29. A horseman is riding at a speed 18 kilometres an hour. How long would it take him to cover 54 kilometres?



30. Solve these equations:

$x \cdot 6 = 54$	$x = 9$	$6 \cdot x = 48$	$x = 8$
$x \cdot 7 = 42$	$x =$	$7 \cdot x = 49$	$x =$
$5 \cdot x = 40$	$x =$	$x \cdot 8 = 72$	$x =$

31. There are 12 oranges on a plate. Mother takes half of the oranges and divides them equally between her three children. How many oranges does she give to each child?

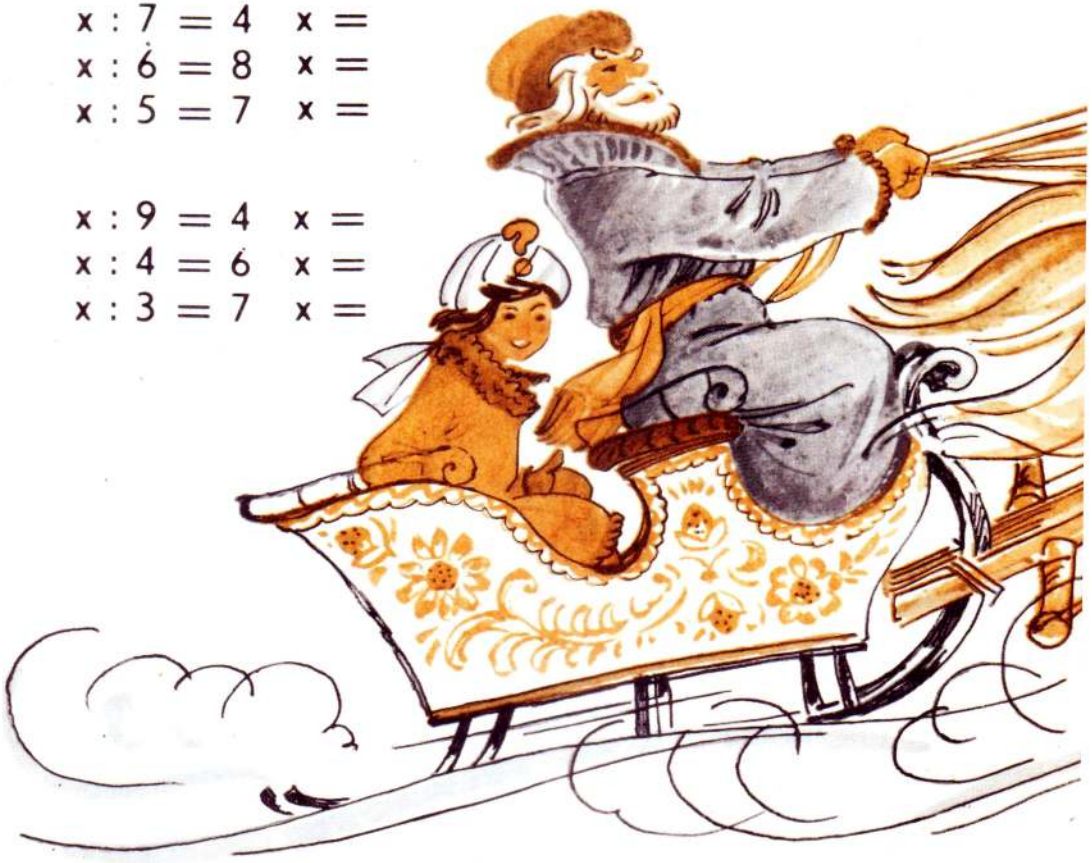
32. The train has travelled 240 kilometres in 4 hours. How fast is it travelling?

□ □ = □

33. Solve these equations:

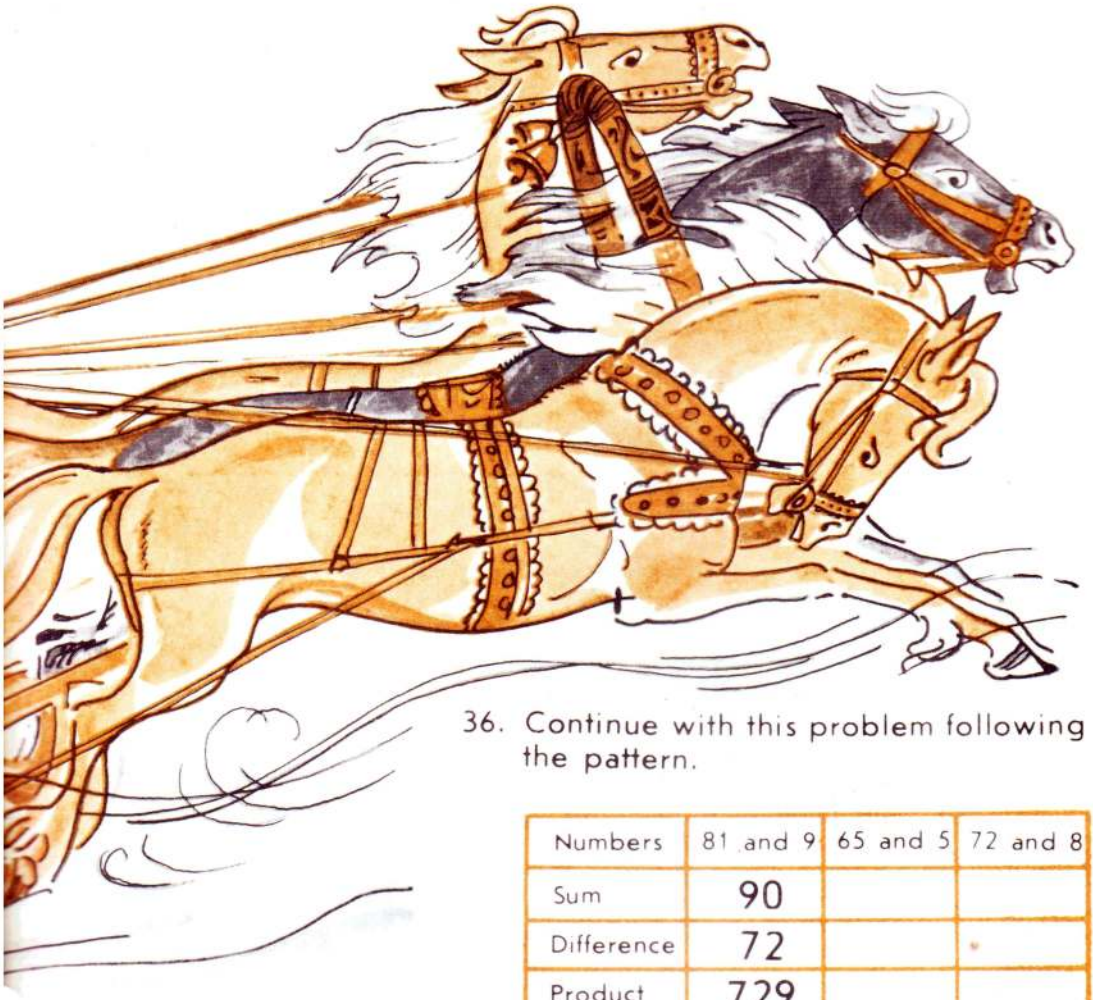
x : 7 = 4 x =
x : 6 = 8 x =
x : 5 = 7 x =

x : 9 = 4 x =
x : 4 = 6 x =
x : 3 = 7 x =



34. There were 12 monkeys in a Zoo, but there were 5 fewer tigers. How many monkeys and tigers did the Zoo have altogether? Write down your answer.

35. *Three horses covered 30 kilometres. How many kilometres did each horse cover?



36. Continue with this problem following the pattern.

Numbers	81 and 9	65 and 5	72 and 8
Sum	90		
Difference	72		
Product	729		
Quotient	9		

37. There were 25 peaches divided between 2 plates, one plate held 1 peach more than the other. How many peaches were on each plate? Write down the answer.

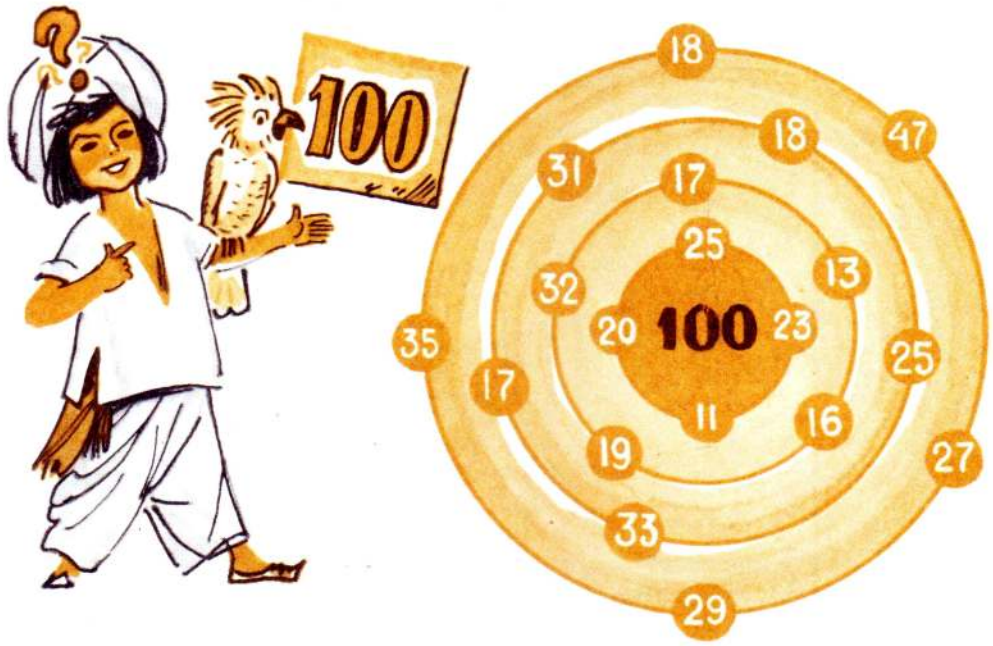
38. There are 24 white swans plus half as many black swans swimming in a lake. How many swans are swimming in the lake altogether?

□ □=□ □ □=□

39. Write down the answers to these sums:

$(17+13)\cdot 2=$ $(73+27):4=$
$(25+16)\cdot 4=$ $(64+26):5=$
$(28+12)\cdot 3=$ $(100-60)\cdot 2=$
$(65-15)\cdot 2=$ $(67-17)\cdot 2=$

40* How many ways can you find through the 4 circles to score 100 points?



41* There were palm-trees and chestnuts growing in a forest meadow. The palm-trees numbered 72, 3 times as many as the number of chestnuts. How many palm-trees and chestnuts altogether were there in the forest meadow?

□ □=□ □ □=□

42* Draw another house so that it faces the opposite direction.

43* Guess the month your friend was born in.
Ask him to add 6 to the number of his birth month, then subtract 5 from the answer, and multiply the answer by 2. Then ask him to tell you his final answer and guess which month your friend was born in.

44.* The children go sightseeing in three buses. There were 40 children altogether in two of them. How many children are there in the three buses altogether if each bus carries the same number of children?

□ □=□ □ □=□

45.* How many legs has a beetle?
How many legs has a spider?
I have 3 beetles in one box,
And 3 spiders in another.
There are two hedgehogs in the room,
And two birds sing in two cages.
Can you say how many legs
They altogether have?

46.* Three brothers have one sister each. How many children are there in the family?

47.* In 5 hours a man had walked 25 kilometres. How many kilometres had he walked in 4 hours?

□ □ = □

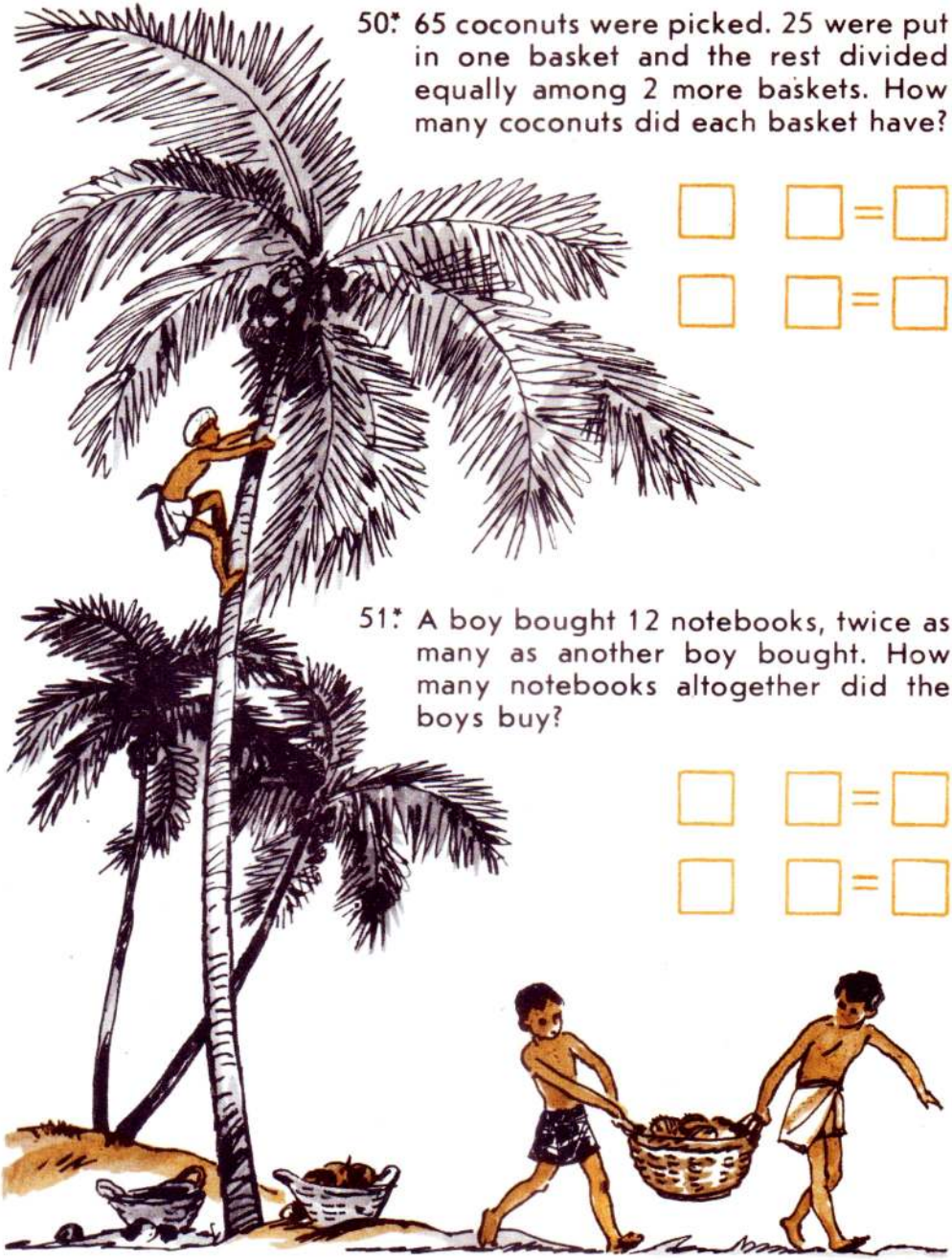
□ □ = □

48. Write down the answers to these sums:

$(12+13) \cdot 3 =$
$(14+15) \cdot 2 =$
$(17+23) \cdot 2 =$
$(16+20) \cdot 3 =$

$(72+28) : 2 =$
$(65+35) : 5 =$
$(81+19) : 10 =$
$(17+43) : 3 =$

49.* Two fathers and two sons buy 3 oranges. Everybody has one orange each. How is this possible?



50* 65 coconuts were picked. 25 were put in one basket and the rest divided equally among 2 more baskets. How many coconuts did each basket have?

□ □ = □

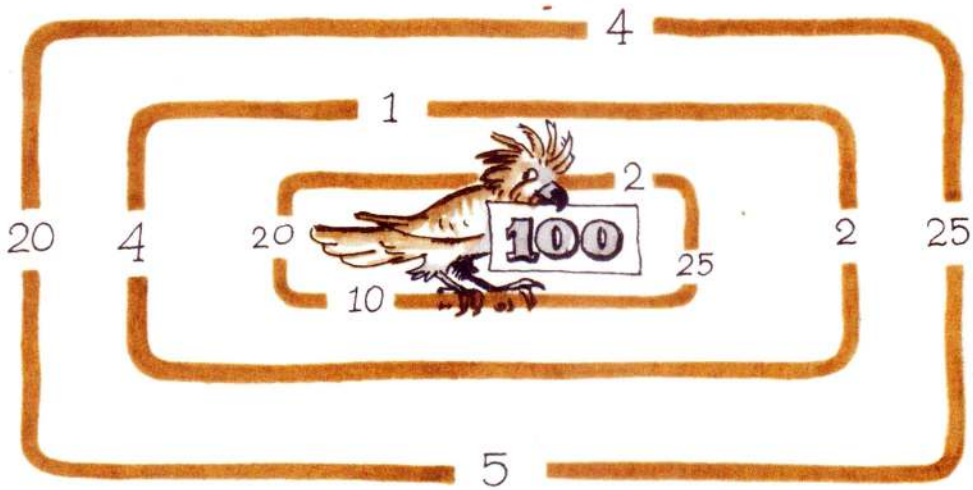
□ □ = □

51* A boy bought 12 notebooks, twice as many as another boy bought. How many notebooks altogether did the boys buy?

□ □ = □

□ □ = □

52* By multiplying, dividing, adding and subtracting work out sums which have 100 as the answer.



53* A girl bought 10 toy elephants, another one bought 2 fewer elephants. A third girl bought as many as the first two girls put together. How many elephants did the third girl buy?

54. Solve these equations:

$x : 3 = 75$	$x \cdot 4 = 360$	$x - 153 = 200$
$x =$	$x =$	$x =$
$x \cdot 6 = 480$	$x : 15 = 25$	$175 - x = 73$
$x =$	$x =$	$x =$

55* Drawing two lines divide this rectangle into 3 parts.

56* 36 cars are placed on flat-wagons, 3 cars on each one. 18 lorries are placed on flat-wagons, 2 lorries on each. How many flat-wagons are there altogether in the train? Write down the answer.

□ □=□ □ □=□

□ □=□

57* Ask your friend to subtract 1 from the number of his house and then add 2 and 2 again. Ask him to tell you the result. Now you can work out the number of your friend's house. Can't you?

58* How can you calculate this quicker?

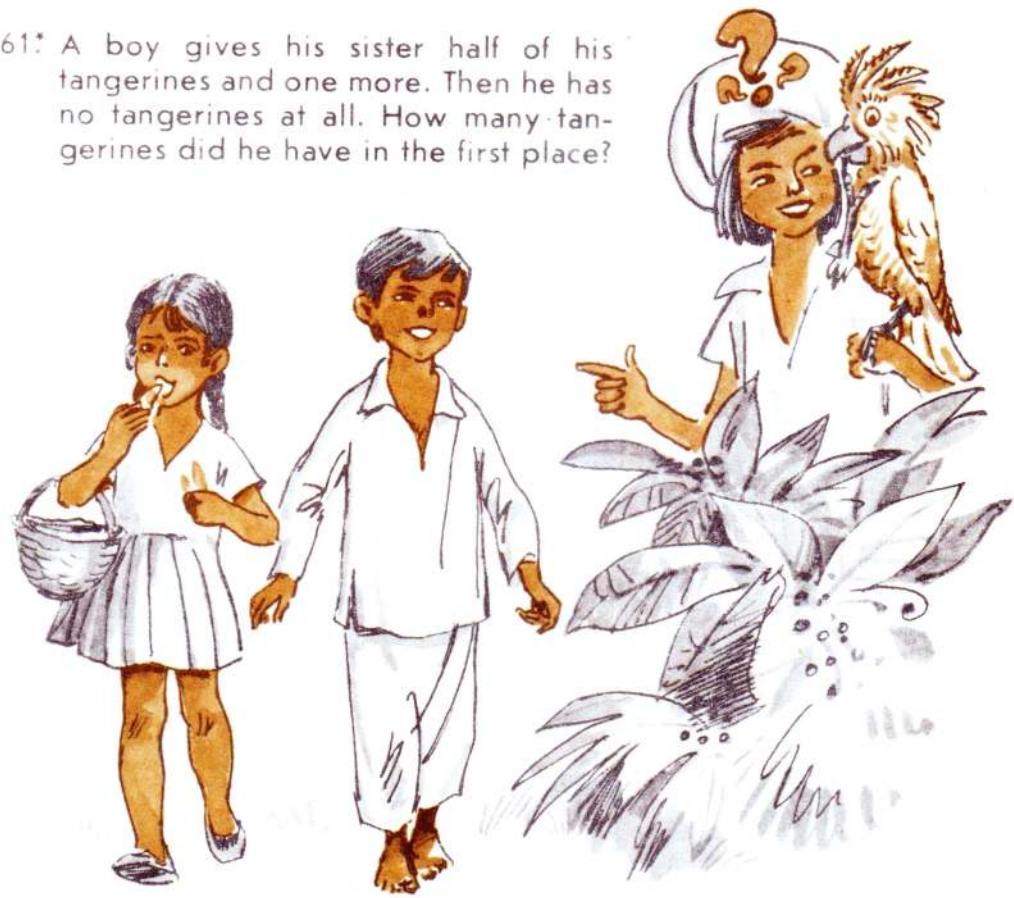
$$(2 \cdot 5)+2+2+2+2+2 =$$

59. Pineapple-trees were planted in lines 15 trees in each. How many trees are in 3 lines? 6 lines? Write down the solution.

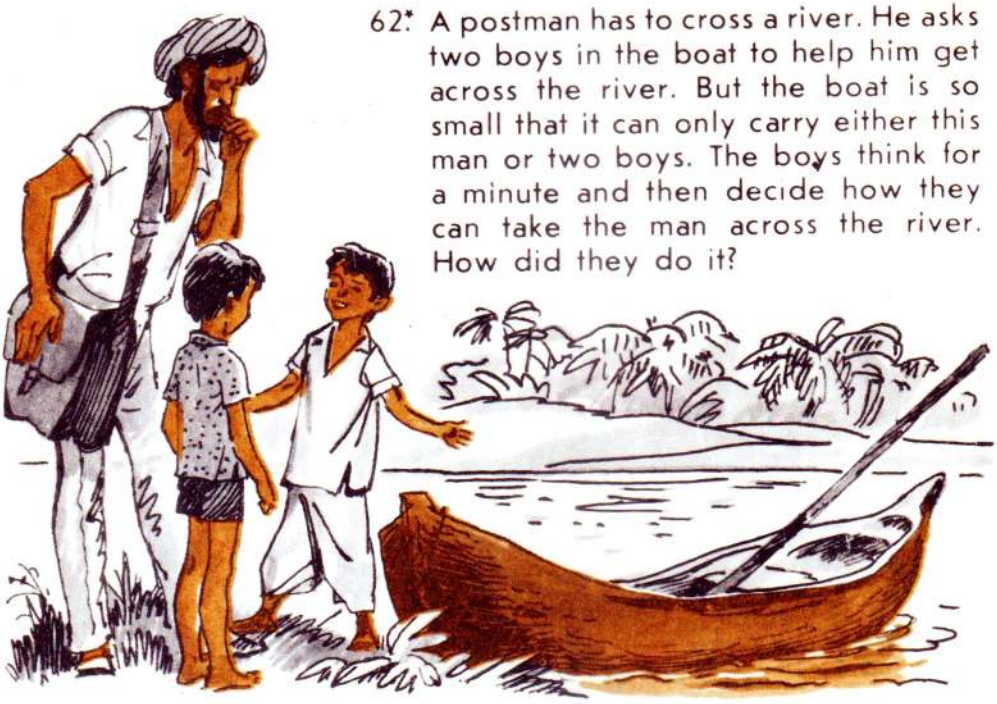
□ □=□ □ □=□

60.* Ask your friend to think of a number, and then add 4 to it. Ask him to multiply the result by 3, subtract 7 from the total and then subtract a further 5. Guess what was your friend's number by the result.

61.* A boy gives his sister half of his tangerines and one more. Then he has no tangerines at all. How many tangerines did he have in the first place?



62.* A postman has to cross a river. He asks two boys in the boat to help him get across the river. But the boat is so small that it can only carry either this man or two boys. The boys think for a minute and then decide how they can take the man across the river. How did they do it?



63.* One girl can jump over a string which is one metre off the ground. How high could two girls jump?

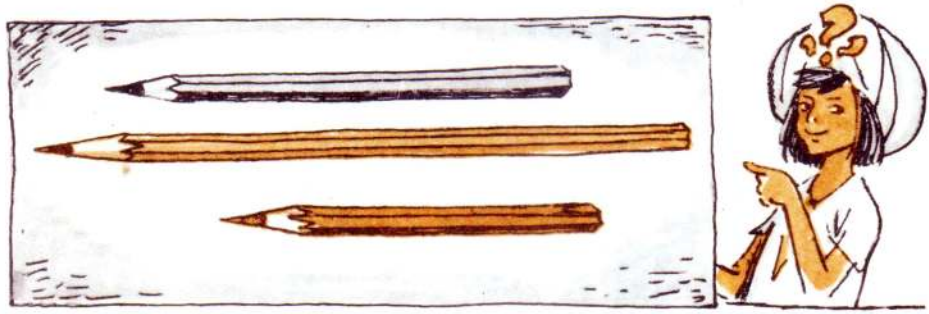
64. Which geometrical shapes form each drawing? What is the difference between the drawings?

65.* The girl has eaten 3 sweets and then wants to eat another one. How many sweets has she eaten?

66.* The brother is 3 years old now. His sister was 5 years older than he was 2 years ago. How old is she now?

67.* Which two numbers give you the same result when they are added to each other or multiplied by each other?

68.* There are three pencils of different length on the table. How can you take the longest pencil away from the middle without touching it?



69.* 1008 red roses were growing in a botanical garden, 3 times as many as the number of white ones. How many red and white roses altogether were growing in the botanical garden? Write down your answer.

□ □ = □

□ □ = □

70.* You have three matches. How can you make them into four without breaking them?

71.* There are 3 matches on the table. You must add 2 more to get 8 matches. How can you do it?

72. How can you calculate this quicker?

$25 \cdot 7 \cdot 4 + 300 =$

$8 \cdot 4 + 8 \cdot 3 + 8 \cdot 2 + 8 \cdot 1 =$

$87 + 50 + 13 : 75 : 25 - 2 =$

7? Amusing "Multiplication Finger Tables".

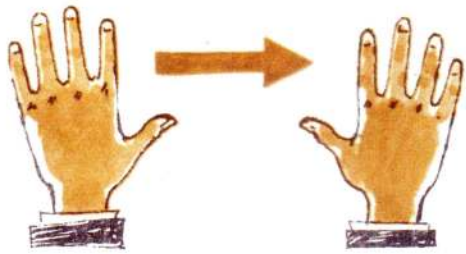
For Simple Numbers Greater than 5

Say for instance, you need to multiply 8 by 6. Stretch 3 fingers of one hand (8 is 3 more than 5) and bend 2 more fingers; stretch out 1 finger of the other hand (6 is 1 more than 5) and bend the other 4 fingers. The stretched fingers are each equal to ten, add them all together (3 tens + 1 ten = 4 tens); bent fingers are each equal to units which are multiplied ($2 \cdot 4 = 8$). The number of units is added to the number of tens ($40 + 8 = 48$).

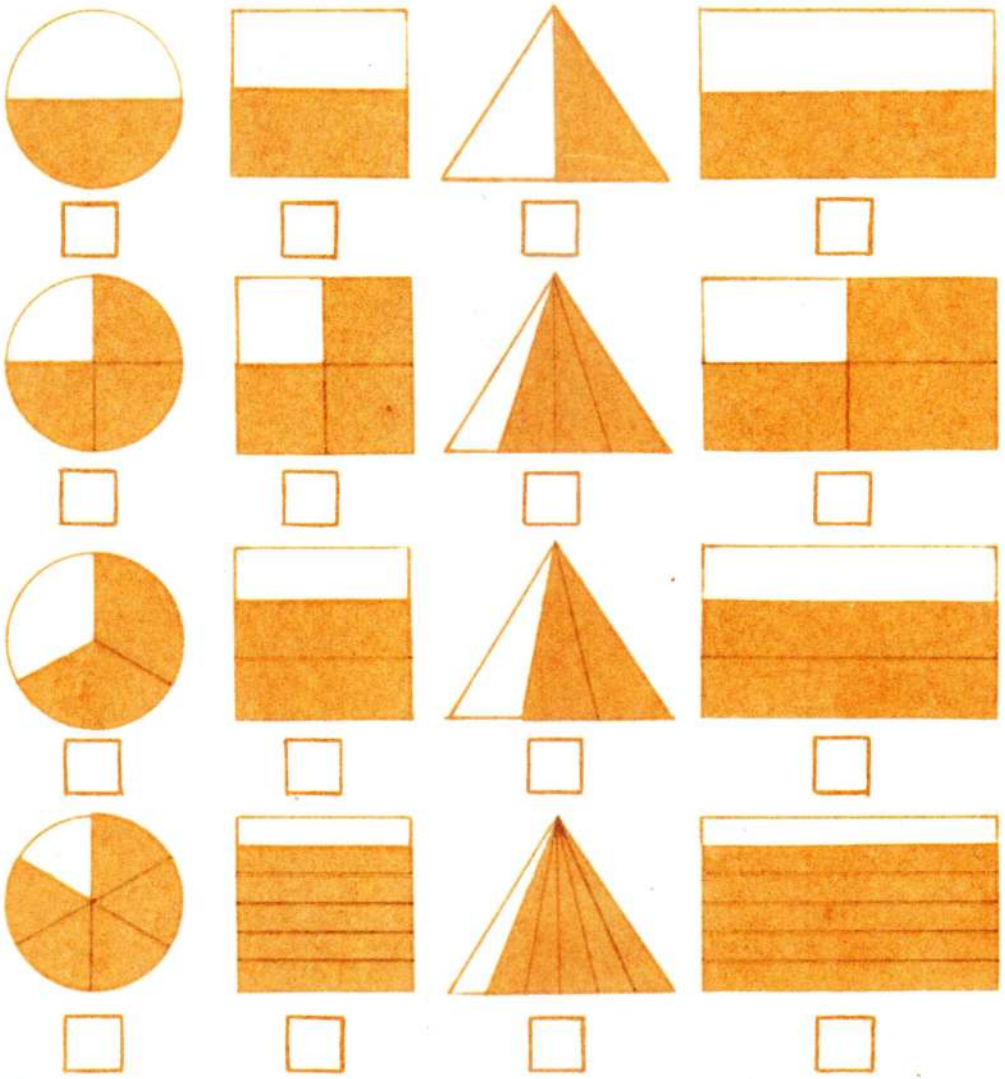
For Multiplying by 9

Put your two hands on a table: your ten fingers will serve as a "computer". Count from left to right. Say for instance, you want to multiply 4 by 9. The fourth finger gives you the answer: there are 3 fingers to the left and 6 fingers to the right of it, so the result is 36.

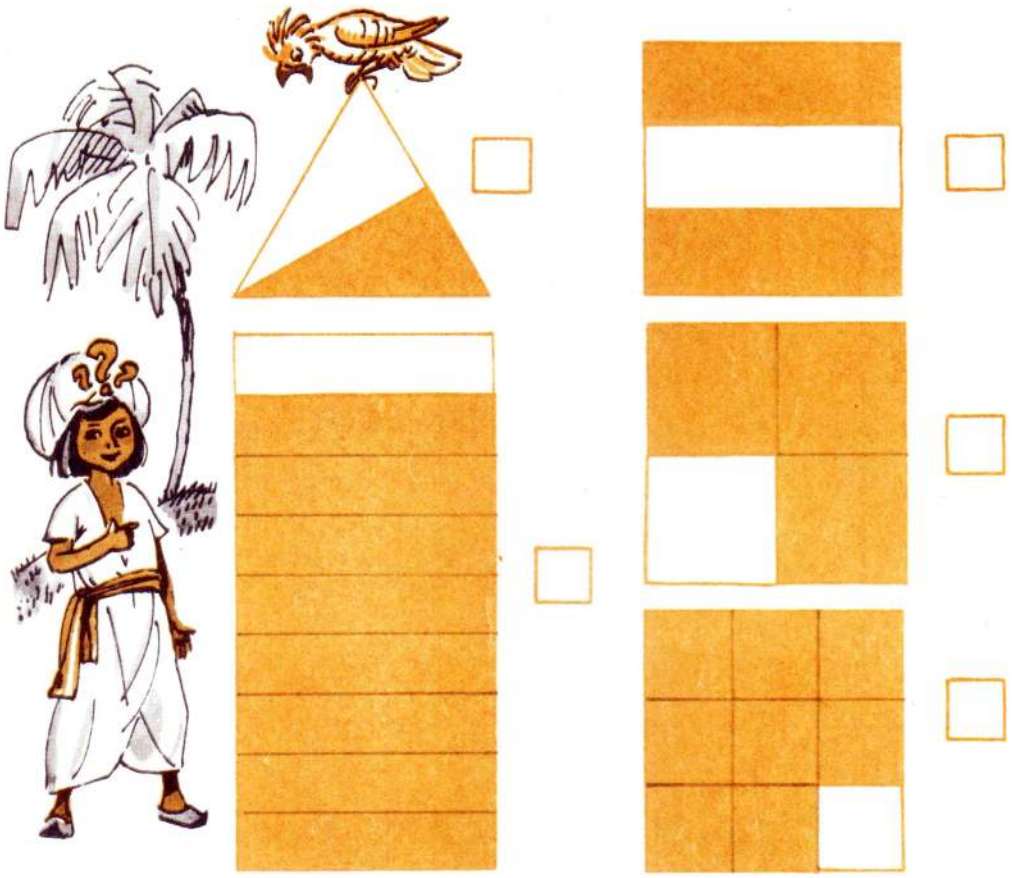
Another example: what is 7 times 9? The seventh finger has 6 fingers to the left and 3 fingers to the right. So $7 \cdot 9$ gives you 63.



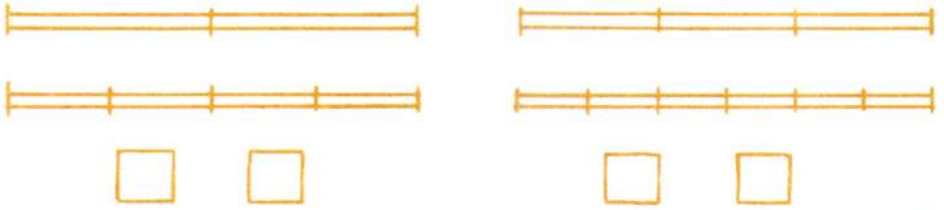
74. How many equal parts are these geometrical shapes divided into? Write down the fraction of each shapes shaded area.



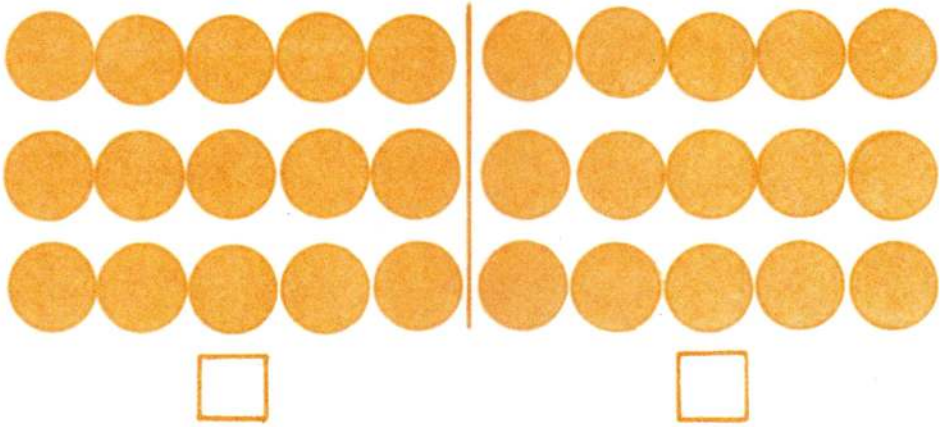
75. How many equal parts are these geometrical shapes divided into? Write down the fraction of each shapes shaded area.



76. Which fraction is the greatest?

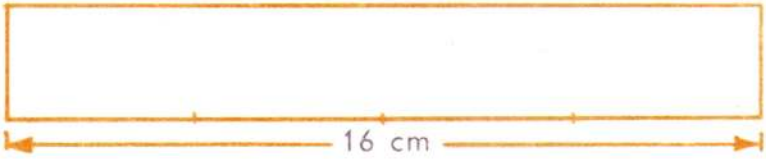


77.* How many circles make up $^1/_2$ of 30 circles? $^1/_3$ of 30 circles?

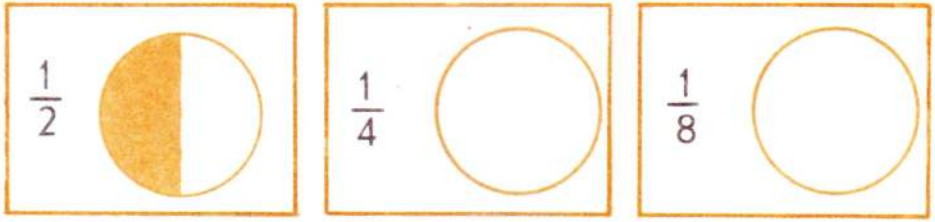


78.* How many triangles make up $^1/_3$ of 12 triangles? Colour in $^1/_3$ of all the triangles.

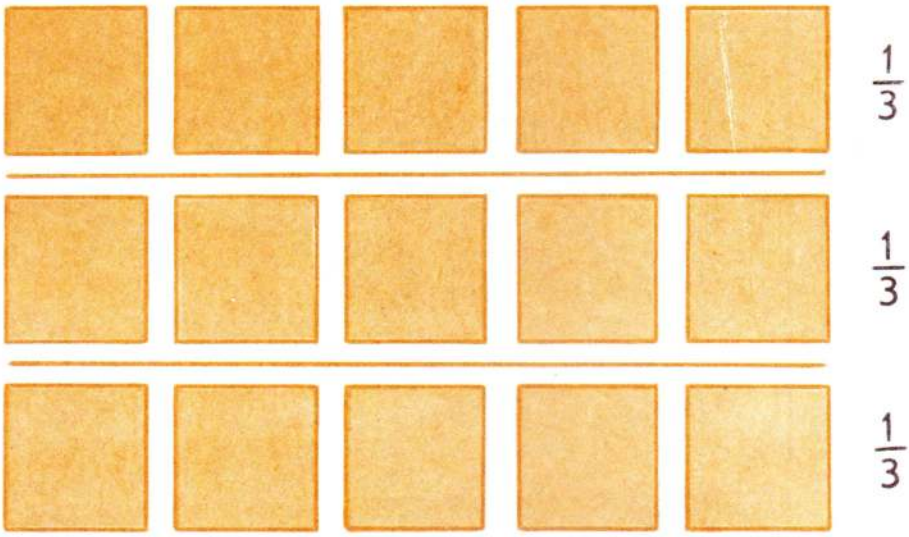
79.* How long is $^1/_4$ of this strip:



80. Follow the pattern:

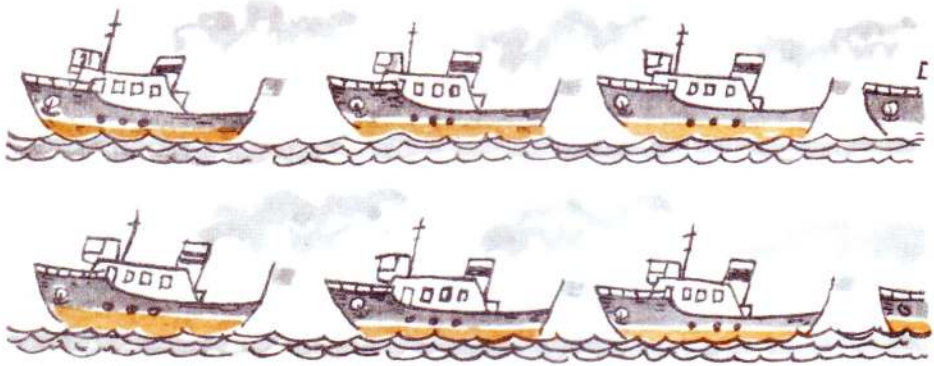


81* How many quadrangles make up $^1/_3$ of 15 quadrangles?



□ □ = □

82* 6 boats make up $^1/_3$ of all the boats floating on the river. How many boats are there altogether?

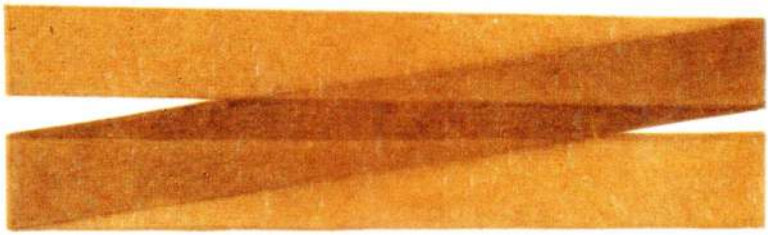


□ □ = □

83.* 7 bicycles make up $^1/_5$ of the total number of a shop's bicycles. How many bicycles are in the shop altogether?

□ □ = □

84.* What is the length of the whole band if $^1/_3$ of it is 10 cm?



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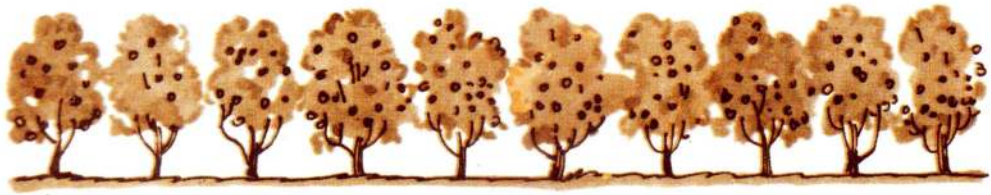
85.* 10 fruit-trees make up $^1/_5$ of all the trees in the garden. How many fruit-trees are there altogether in the garden?



□ □ = □

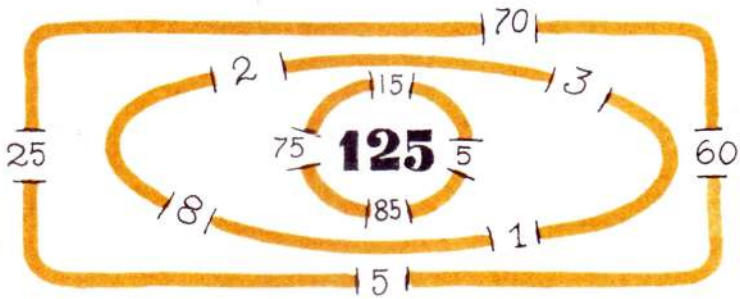
86. Find the fractions of the given numbers:

Numbers	30	40	50	60	70	80	90
Find $^1/_2$ of							
Find $^1/_5$ of							

87.* There were 17 white butterflies flying in a forest meadow and the number of yellow ones was twice as many. How many butterflies altogether were flying in the forest meadow?

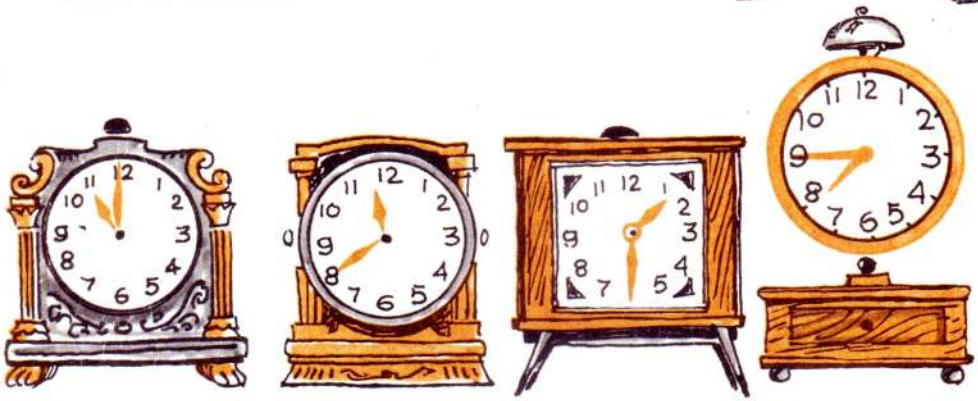
□ □ = □ ( )

88.* How many different ways into the labyrinth will give you a score 125?



III. PERIODS OF TIME AND THEIR MEASUREMENT

89* What time does each clock say? How many minutes does the minute hand take to go half way round of the circle? a quarter of the circle? How many minutes does it take the minute hand to go from one large mark to another?

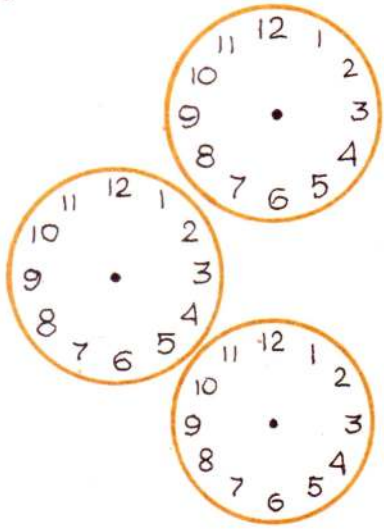


Draw the hands of the clock in the correct position.

90* The lesson begins at 30 minutes past 8 (8.30) and lasts 45 minutes. When does it end?

The break lasts 10 minutes. When does the next lesson begin and end?

The lessons begin at 8.30 and end 5 hours later. What time do they end?



91* A film begins at 10 o'clock and ends at 11.30. How long does it last? When does the next film begin if the interval between the shows lasts 15 minutes?

92* Divide the clock-face into 3 parts so that the sums of numbers in each part are equal.

93* 12 brothers are walking along in a single file. They never overlap but follow one behind the other. What are their names?

94. The Chain

The winner is the first to answer this series of multiplication and division sums. See the example.

$7 \cdot 4 = 28$
$4 \cdot 7 = 28$
$28 = 7 \cdot 4$
$28 : 4 = 7$
$28 : 7 = 4$

$3 \cdot 9 =$

$6 \cdot 5 =$

$7 \cdot 8 = 56$
$8 \cdot 7 = 56$
$56 = 7 \cdot 8$
$56 : 8 = 7$
$56 : 7 = 8$

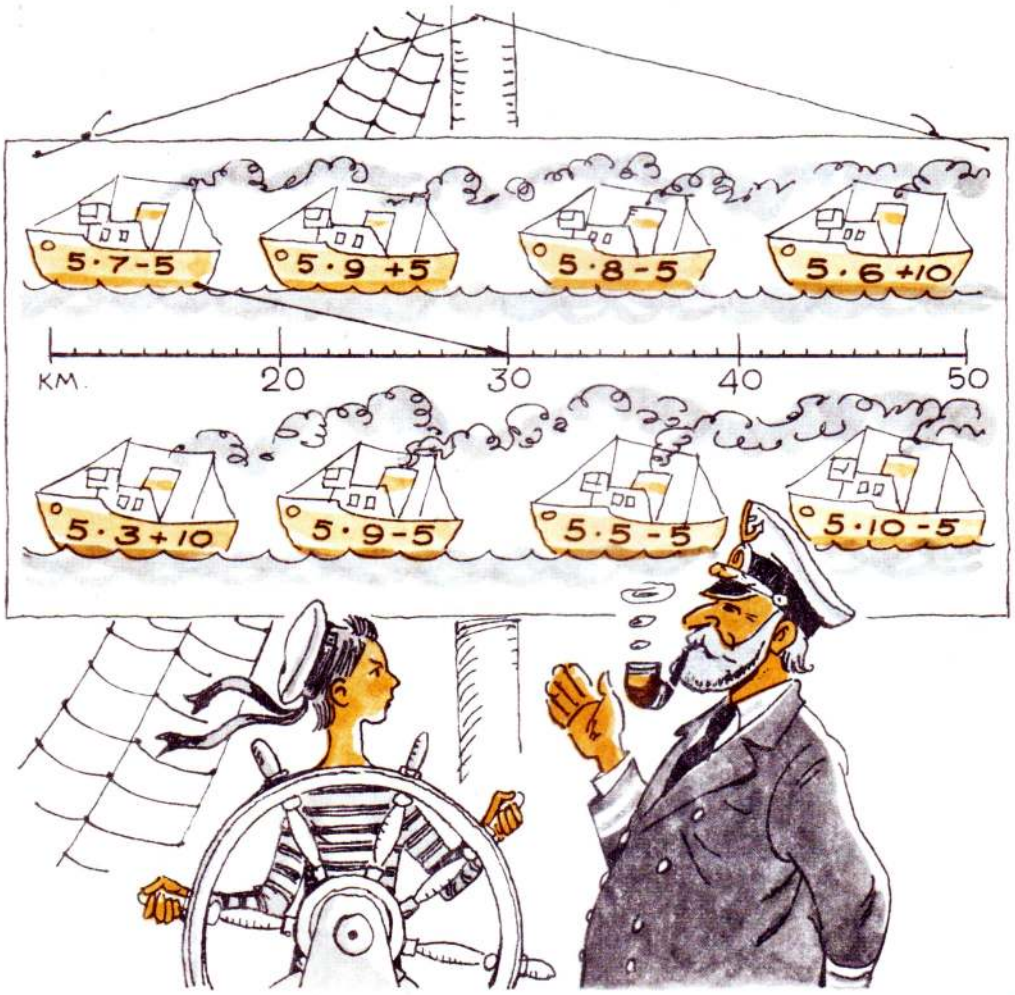
$5 \cdot 9 =$

$6 \cdot 7 =$

95. I Am a Captain

A captain has to steer his ships on the planned course. Every ship's position is coded in an arithmetical problem. To steer the ships correctly you have to solve each problem; the answers are the number of miles which each ship has to sail. Mark the ship's course with an arrow.

The first to finish planning his ship's course is a true captain.



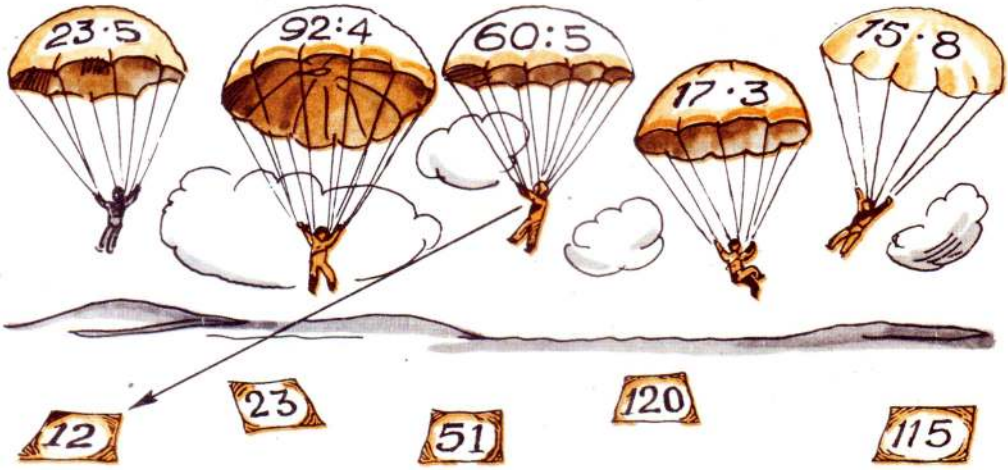
96. I Am a Pilot

The first to solve all the problems correctly becomes a pilot:

$3 \cdot 7 =$	$6 \cdot 4 =$	$63 : 7 =$	$56 : 8 =$
$5 \cdot 3 =$	$8 \cdot 3 =$	$49 : 7 =$	$54 : 9 =$
$8 \cdot 4 =$	$9 \cdot 3 =$	$72 : 8 =$	$45 : 9 =$
$9 \cdot 4 =$	$9 \cdot 8 =$	$90 : 9 =$	$35 : 7 =$
$5 \cdot 6 =$	$6 \cdot 7 =$	$81 : 9 =$	$56 : 8 =$
$7 \cdot 7 =$	$8 \cdot 8 =$	$64 : 8 =$	$30 : 5 =$
$4 \cdot 8 =$	$9 \cdot 7 =$	$24 : 4 =$	$42 : 7 =$

97. I Am a Skydiver

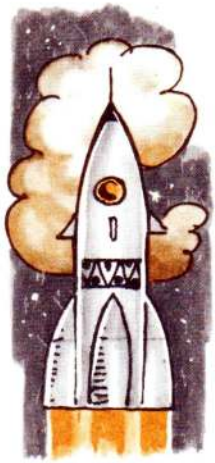
The flight direction is marked on each parachute. You must mark the place where each parachute landed with an arrow. The first to do so correctly becomes a real skydiver.



I Am a Cosmonaut

1) To become a cosmonaut you must pass an exam: quickly answer this series of sums. See the example.

$7 \cdot 2 =$
$2 \cdot 7 =$



$8 \cdot 9 =$

$9 \cdot 6 =$

$7 \cdot 8 =$

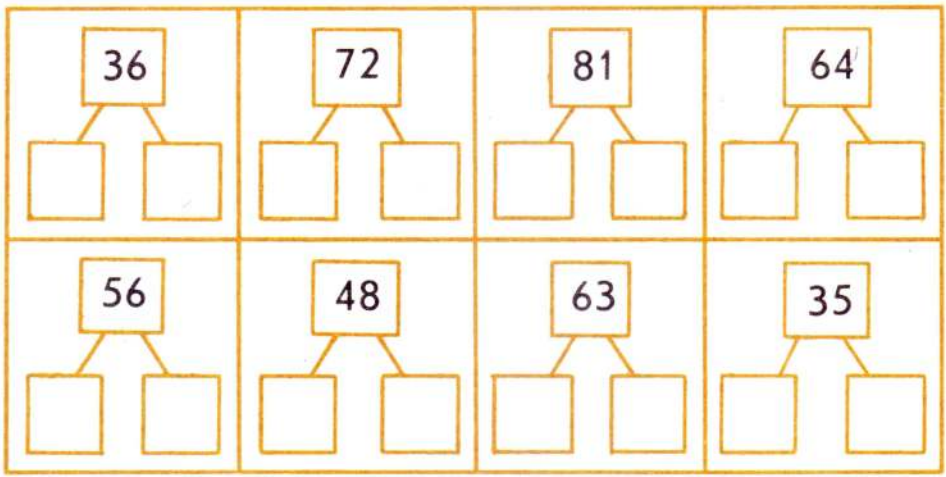
$14 = \square \cdot \square$
$14 : 7 = \square$
$14 : 2 = \square$

2) Now you are on your first space flight. As every cosmonaut, you have to carry out difficult number operations. Please prove yourself to be a real cosmonaut:

$35 \cdot 2 =$	$72 : 3 =$	$18 \cdot 5 : 2 =$
$13 \cdot 7 =$	$64 : 4 =$	$70 : 2 : 5 =$
$19 \cdot 4 =$	$36 : 2 =$	$27 + 68 =$
$24 \cdot 3 =$	$72 : 2 =$	$24 : 4 \cdot 9 =$
$25 \cdot 4 =$	$96 : 2 =$	$62 : 2 \cdot 2 =$

99. Try and Guess

You are given the answer to a multiplication sum. Guess what the factors are and write them down into the squares:



100. The Best Counter

The best counter is the first to fill in all the squares:

a	30	50	75	64	81	72
b	15	10	5	4	9	8
a+b						
a−b						
a · b						
a : b						

101. A Merry Pencil

A merry pencil gives you a test.
You solve the problems
And say who's the best.

$35+15:2=$ $37+23\cdot 3=$
$75-25\cdot 2=$ $175-25:3=$
$63-13\cdot 3=$ $185-60:5=$
$93-13\cdot 2=$ $150-50:4=$

102. The Best Fisherman

The position of each fish is coded in an arithmetical problem. Draw an arrow showing the place where your fishing line should be dropped. The best fisherman is the one who does it properly and catches a fish.

$(91-31):6$

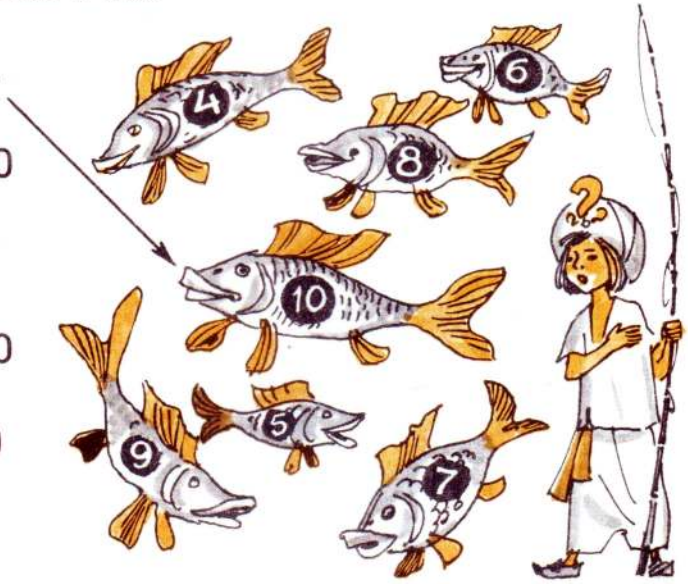
$(73-23):10$

$(95+5):25$

$(17+53):10$

$(45\cdot 2):10$

$(96:3):4$



103. The Puzzles of a Young Fakir

1) Take any number from 2 to 10. Multiply it by 2, then again by 5. Divide this number by 10 and subtract 2. Now I can tell you the original number by the answer. If the answer is 8, the original number was 10; if the answer is 7, the number was 9; if the answer is 6, the number was 8, etc.

2) Take a simple number, multiply it first by 3, then by 2, divide the result by 6 and add 5 to the number you have. I can tell the original number by the answer. If the answer is 6, the original number was 1; if the answer is 7, the number was 8; if the answer is 8, the number was 3, etc.

Guess, how the young fakir guesses the original numbers.

104. Mathematical Football

You are playing "Mathematical Football". You are to calculate the direction of the ball's flight, coded in a sum. For each right calculation you are given 1 point, for a wrong one — 2 points are taken off your score. Count, how many points you can get.

$240 : 3 \cdot 4 =$

$160 : 80 \cdot 12 =$

$210 : 7 \cdot 15 =$

$350 : 50 \cdot 60 =$

$320 : 80 \cdot 70 =$

105. Mathematical Hockey

You are playing "Mathematical Hockey". For the right solution of the sums you can get a number of points equal to the result of each sum. Count, how many points you got in this game.

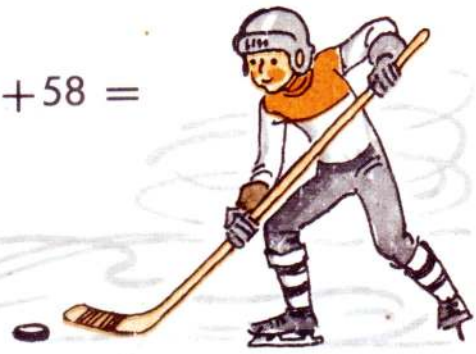
$270 \cdot 2 + 30 =$

$640 : 80 + 58 =$

$650 : 5 + 70 =$

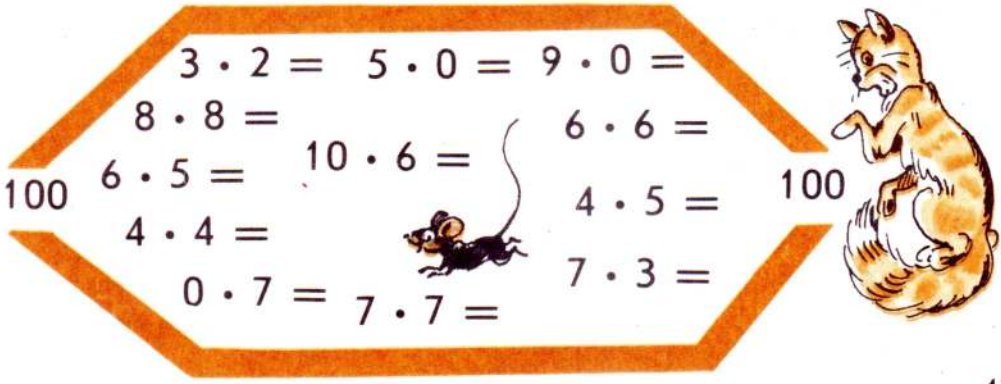
$220 : 11 - 10 =$

$350 : 5 - 30 =$



106*. Mathematical Labyrinth "Catch!"

A cat and a mouse are running in the labyrinth, competing in calculations. The cat made 4 multiplications adding up the results. It took him 10 minutes to do the same operation with different numbers 6 times altogether, each time getting the sum of 100. The same operation took the mouse 15 minutes. And how many moves did you find in this labyrinth with the sum 100, and how long did it take you?



107*. The Funny Square

Put numbers in empty cells. Multiply the numbers in each line and each column. If you chose right numbers, the results of the multiplications must be the same. Write the result in the shaded cell.

ANSWERS TO THE PROBLEMS

p.12 **(28)**: The number thought of by the boy is 4. To guess the number you must subtract 3 from 11 and divide the result by 2.

p.15 **(35)**: Each horseman covered 30 km.

p.16 **(40)**: There can be 11 solutions:

$$47+17+13+23 = 100$$
$$47+17+16+20 = 100$$
$$47+25+17+11 = 100$$
$$27+31+17+25 = 100$$
$$27+31+19+23 = 100$$
$$27+18+32+23 = 100$$
$$27+33+17+23 = 100$$
$$29+31+17+23 = 100$$
$$29+33+13+25 = 100$$
$$35+25+17+23 = 100$$
$$18+25+32+25 = 100$$

p.17 **(41)**: 96 palm-trees and chestnuts.

(42):

(43): Divide the number your friend told you by 2, subtract 1 from the result and with the help of a calendar tell him the month he was born in.

p.18 **(44)**: 60 children.

(45): 54 legs.

(46): 4 people.

p.19 **(47)**: 20 km.

(49): There are 3 men in the family: grandfather, father and son.

p.20 **(50)**: The second and the third baskets had 20 coconuts each.

(51): 18 notebooks.

p.21 **(52)**: There can be 6 solutions:

$$20 \cdot 4 + 20 = 100$$
$$25 \cdot 1 \cdot 4 = 100$$
$$25 \cdot 2 \cdot 2 = 100$$
$$5 \cdot 2 \cdot 10 = 100$$
$$(4 + 1) \cdot 20 = 100$$
$$(5 - 1) \cdot 25 = 100$$

(53): 18 elephants.

(55):

p.22 **(56)**: 21 flat-wagons.

(57): To know the number of your friend's house you must subtract 3 from the number he told you.

(58): $2 \cdot 5 + 2 \cdot 5 = 20$

p.23 **(60)**: To guess your friend's number you must divide the result by 3.

(61): 2 tangerines.

p.24 **(62)**: The boys take the boat to the opposite bank of the river. One boy gets out while the other takes the boat back to the postman and gives him the boat. The postman crosses the river. He then gives the boat back to the boy who stayed on the opposite bank. The boy then joins the other one.

(63): Another girl can jump over the string either put at a height of one metre, or at a different height.

p.25 **(65)**: 3 sweets.

(66): 8 years.

(67): $2+2=4;\ 2\cdot 2=4$

(68): You must replace one of the side pencils onto the other side.

p.26 **(69)**: 1344 roses.

(70): IV

(71): VIII

p.30 **(77)**: 15 and 10 circles.

(78): 4 triangles.

(79): 4 cm.

p.31 **(81)**: 5 quadrangles.

(82): 18 boats.

p.32 **(83)**: 35 bicycles.

(84): 30 cm.

(**85**): 50 fruit-trees.

p.33 (**87**): 51 butterflies.

(**88**): $25 \cdot 8 - 75 = 125$
$70 \cdot 2 - 15 = 125$
$60 \cdot 2 + 5 = 125$
$70 \cdot 3 - 85 = 125$. Etc.

p.34 (**89**): 30 minutes; 15 minutes; 5 minutes.

(**90**): at 9.15; at 9.25; at 10.10.

p.35 (**91**): The next film begins at 11.45.

(**92**):

(**93**): Their names are: January, February, March, April, May, June, July, August, September, October, November, December.

p.43 (**106**): There can be 6 solutions:

$3 \cdot 2 + 8 : 8 + 6 \cdot 5 + 0 \cdot 7 = 100$
$7 \cdot 3 + 7 \cdot 7 + 6 \cdot 5 + 5 \cdot 0 = 100$
$10 \cdot 6 + 4 \cdot 4 + 3 \cdot 2 + 9 \cdot 2 = 100$
$4 \cdot 4 + 8 \cdot 8 + 5 \cdot 4 + 0 \cdot 7 = 100$
$8 \cdot 8 + 6 \cdot 6 + 0 \cdot 7 + 5 \cdot 0 = 100$
$8 \cdot 8 + 4 \cdot 5 + 4 \cdot 4 + 5 \cdot 0 = 100$

p.44 (**107**):

3	2	20
4	5	6
10	12	120

К 1-50